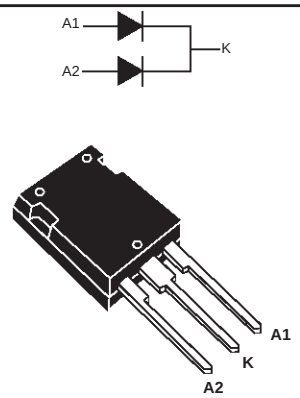
STPS80L15CY

LOW DROP OR-ing POWER SCHOTTKY RECTIFIER

MAIN PRODUCT CHARACTERISTICS

$I_{F(AV)}$	2 x 40 A
V_{RRM}	15 V
Tj (max)	125 °C
V_F (max)	0.33 V



MAX247

FEATURES AND BENEFITS

- VERY LOW DROP FORWARD VOLTAGE FOR LESS POWER DISSIPATION AND REDUCED HEATSINK
- OPTIMIZED CONDUCTION AND REVERSE LOSSES TRADE-OFF WHICH MEANS THE HIGHEST EFFICIENCY IN THE EQUIPMENTS

DESCRIPTION

The STPS80L15CY utilizes proprietary barrier technology to optimize forward voltage drop for OR-ing functions in n-1 fault tolerant Switch Mode Power Supplies.

ABSOLUTE RATINGS (limiting values, per diode)

Symbol	Parameter			Value	Unit
V_{RRM}	Repetitive peak reverse voltage			15	V
$I_{F(RMS)}$	RMS forward current			60	A
$I_{F(AV)}$	Average forward current	Tc = 105°C δ = 0.5	Per diode Per device	40 80	A
I_{FSM}	Surge non repetitive forward current	tp = 10 ms sinusoidal		600	A
I_{RRM}	Repetitive peak reverse current	tp = 2 µs F = 1kHz square		2	A
T_{stg}	Storage temperature range			- 55 to + 150	°C
Tj	Maximum operating junction temperature			125	°C
dV/dt	Critical rate of rise of reverse voltage			10000	V/µs

THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th\ (j-c)}$	Junction to case	Per diode	0.7	°C/W
		Total	0.4	
$R_{th\ (c)}$		Coupling	0.1	

When the diodes 1 and 2 are used simultaneously:
Δ Tj(diode 1) = P(diode1) x $R_{th(j-c)}$(Per diode) + P(diode 2) x $R_{th(c)}$

STATIC ELECTRICAL CHARACTERISTICS (per diode)

Symbol	Parameter	Tests conditions		Min.	Typ.	Max.	Unit
I_R *	Reverse leakage current	Tj = 25°C	V_R = 5V			4	mA
		Tj = 100°C			210	400	
		Tj = 25°C	V_R = 12V			6	
		Tj = 100°C			310	600	
V_F **	Forward voltage drop	Tj = 25°C	I_F = 40 A			0.43	V
		Tj = 100°C	I_F = 40 A		0.28	0.33	
		Tj = 25°C	I_F = 80 A			0.53	
		Tj = 100°C	I_F = 80 A		0.42	0.47	

Pulse test : * tp = 5 ms, δ < 2 %

** tp = 380 μs, δ < 2%

To evaluate the maximum conduction losses use the following equation :
$P = 0.19 \times I_{F(AV)} + 0.0035 \times I_F{}^2{}_{(RMS)}$

Fig. 1: Average forward power dissipation versus average forward current (per diode).

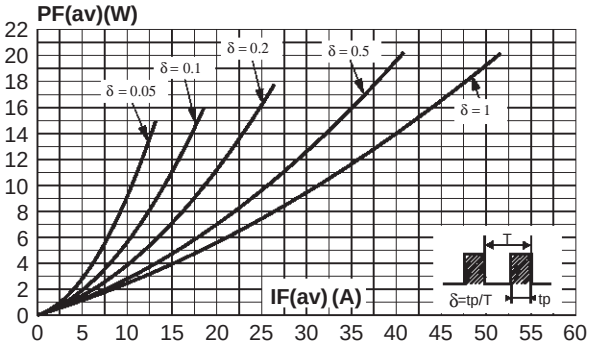


Fig. 2: Average forward current versus ambient temperature (δ=0.5, per diode).

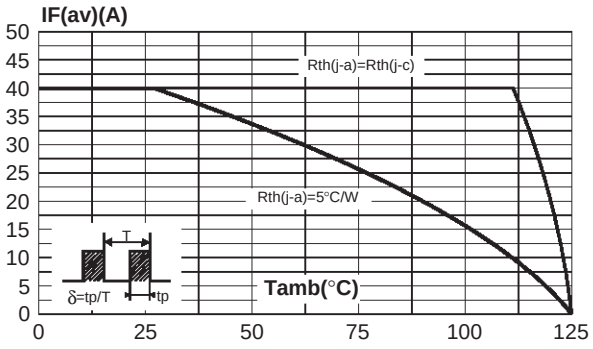


Fig. 3: Non repetitive surge peak forward current versus overload duration (maximum values, per diode).

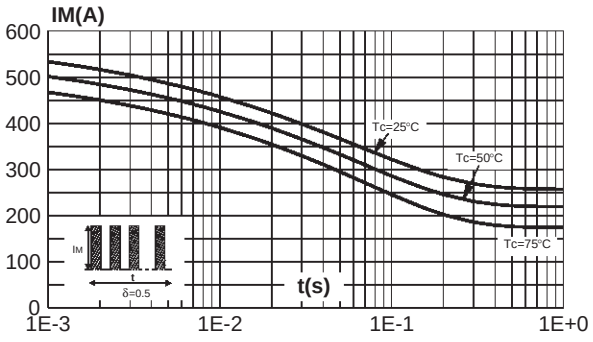


Fig. 4: Relative variation of thermal impedance junction to case versus pulse (per diode).

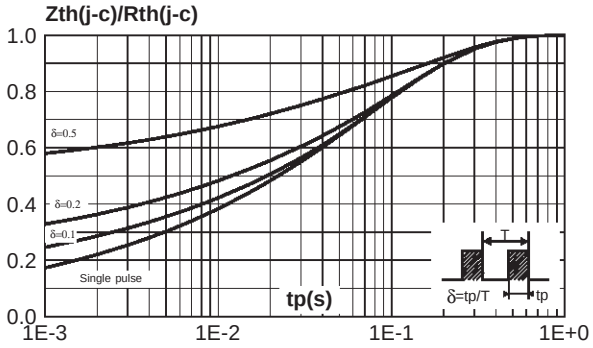


Fig. 5: Reverse leakage current versus reverse voltage applied (typical values, per diode).

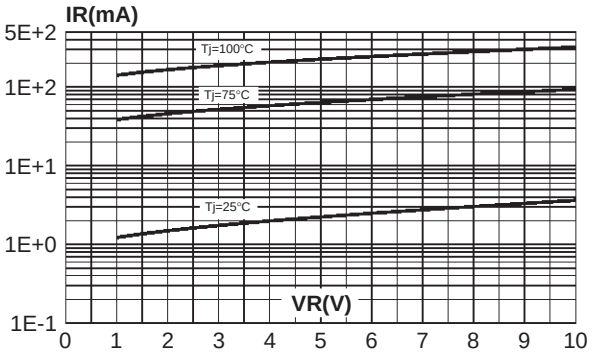


Fig. 6: Junction capacitance versus reverse voltage applied (typical values, per diode).

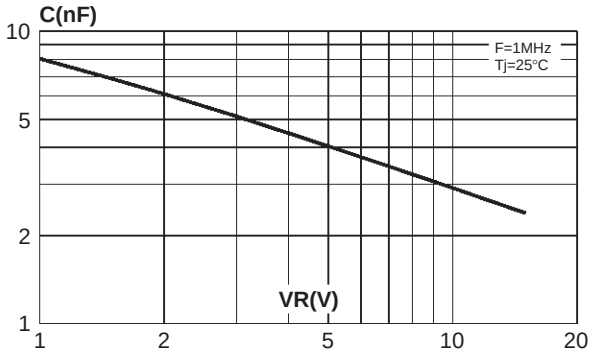
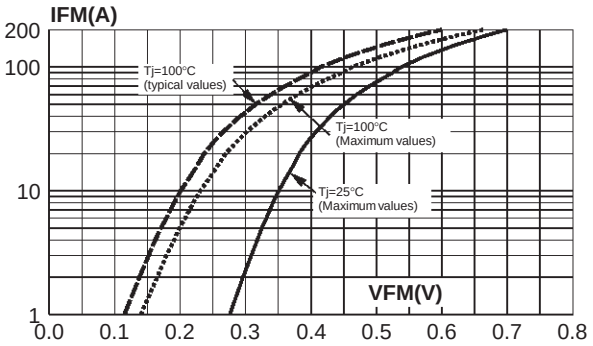


Fig. 7: Forward voltage drop versus forward current (per diode).



PACKAGE MECHANICAL DATA

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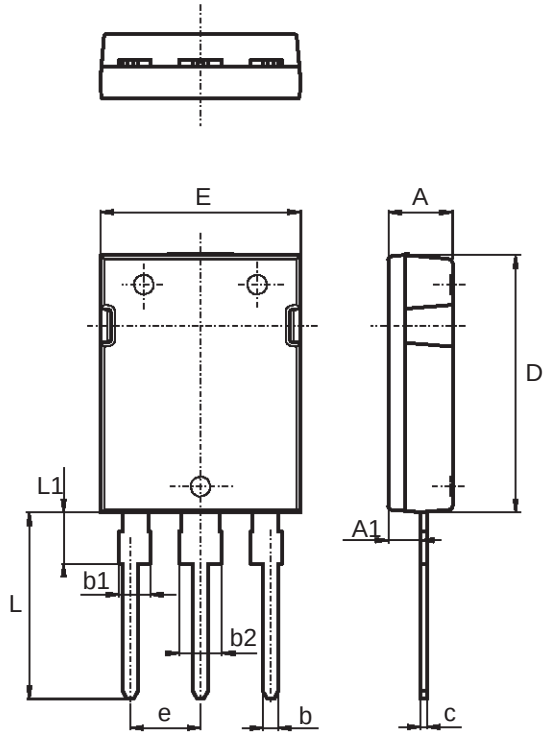

REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	4.70	5.30	0.185	0.209
A1	2.20	2.60	0.087	0.102
b	1.00	1.40	0.038	0.055
b1	2.00	2.40	0.079	0.094
b2	3.00	3.40	0.118	0.133
c	0.40	0.80	0.016	0.031
D	19.70	10.30	0.776	0.799
e	5.35	5.55	0.211	0.219
E	15.30	15.90	0.602	0.626
L	14.20	15.20	0.559	0.598
L1	3.70	4.30	0.146	0.169

Ordering type	Marking	Package	Weight	Base qty	Delivery mode
STPS80L15CY	STPS80L15CY	MAX247	5g	30	Tube

- Epoxy meets UL94,V0
- Cooling method: C